

Understanding Boundaries: Navigating the Do's and Don'ts of Relative MICS Contraindications

Dr. Harish Badami, Department of Cardiothoracic Surgery,Mallareddy Narayana Superspeciality Hospital
Poster ID: ismics2025.12201b1 | ISMICS 2025 Annual Meeting

Abstract

Background: Minimally Invasive Cardiac Surgery (MICS) is gaining popularity due to reduced trauma and faster recovery. However, relative contraindications such as obesity, poor left ventricular function, and redo surgeries remain a challenge.

Aim: To evaluate the feasibility and outcomes of MICS in patients with relative contraindications.

Methods: Single-centre observational study including 28 patients with high-risk profiles undergoing MICS.

Results: MICS was successfully performed in obese patients (BMI >30), patients with LVEF <35%, those presenting with ACS, and redo surgical candidates. Modifications in technique were crucial for success.

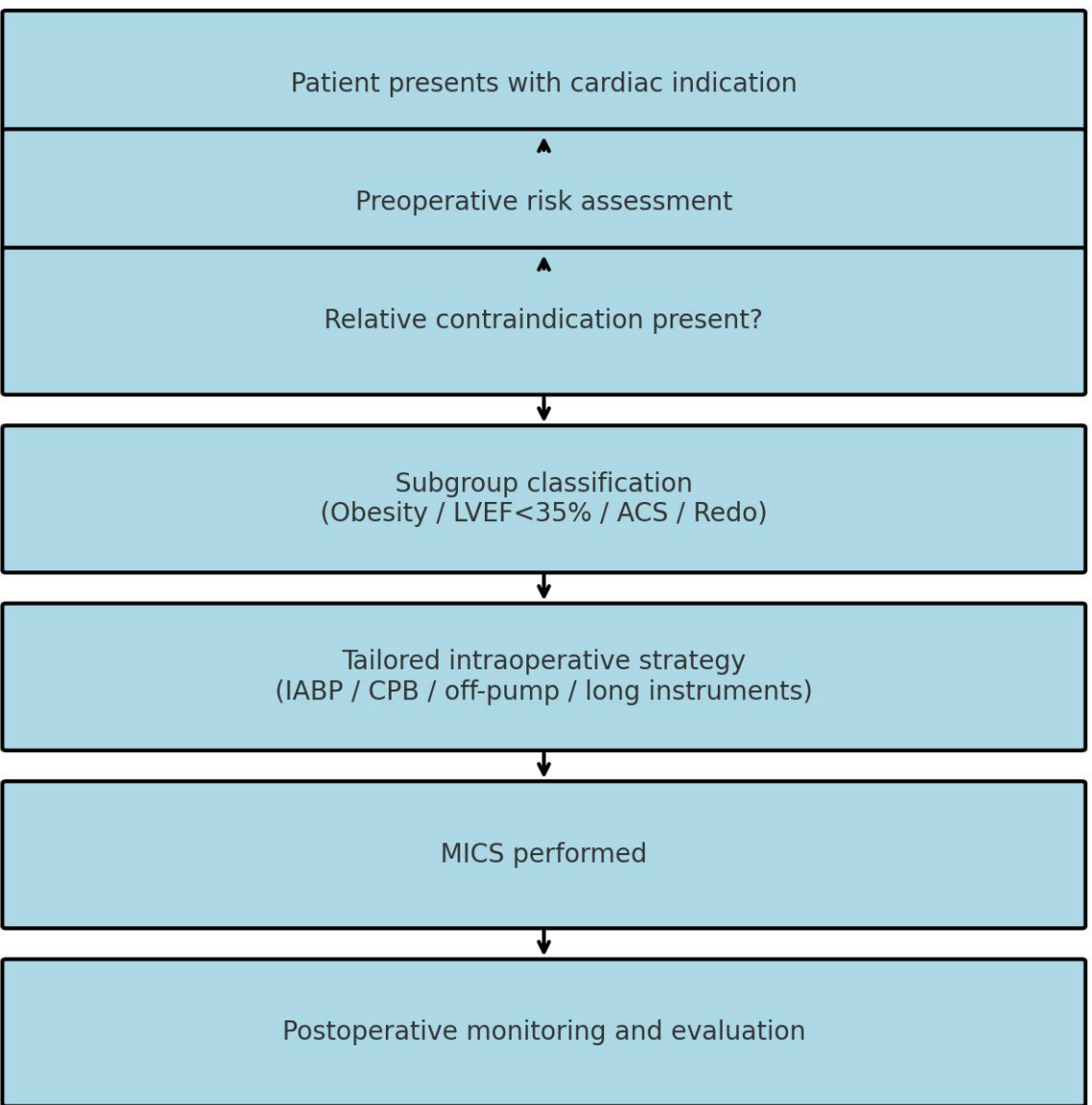
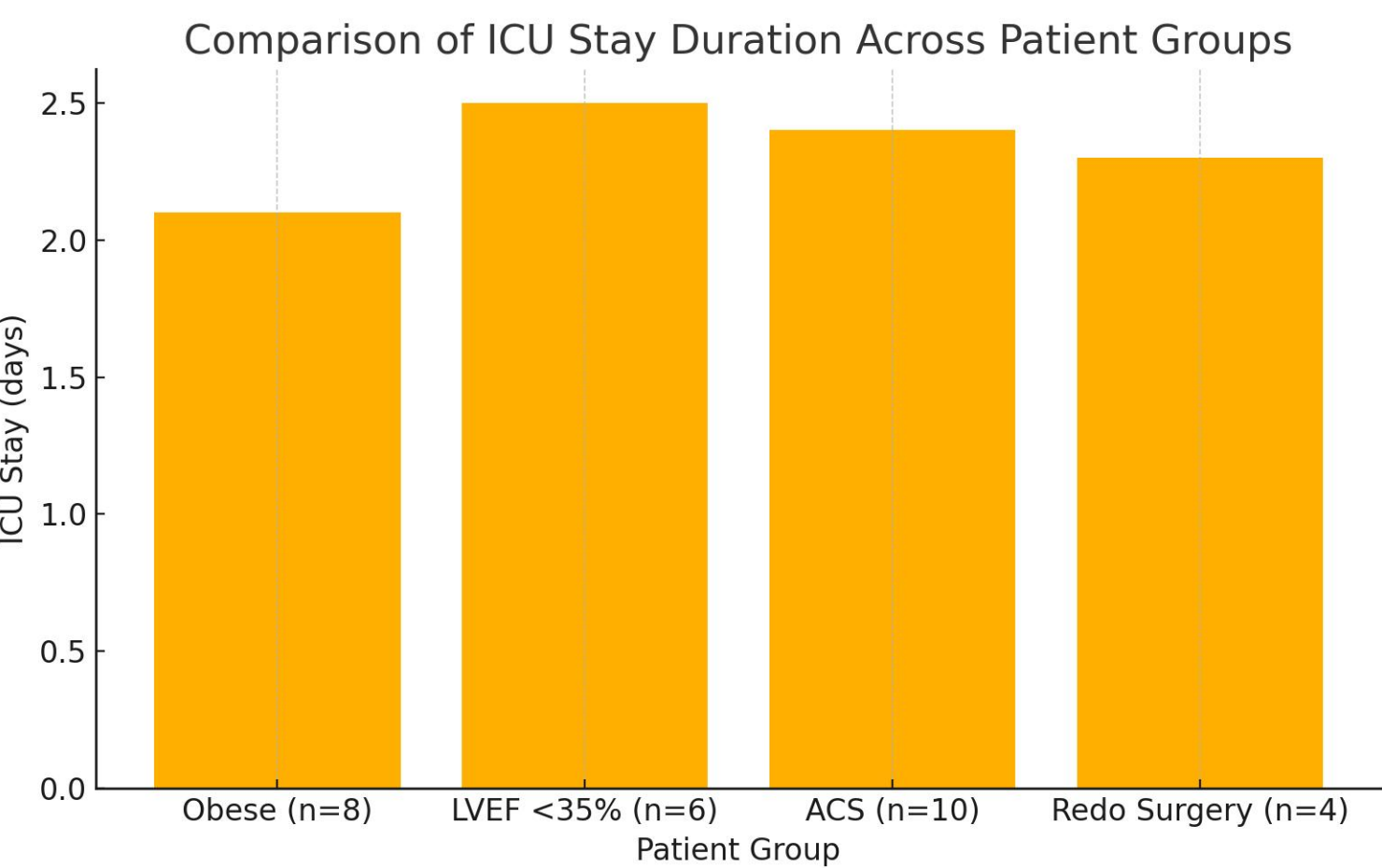
Conclusion: MICS is feasible with proper planning and adapted surgical strategies even in borderline contraindicated patients.

Introduction

- MICS has evolved as a safer alternative to conventional sternotomy. [1,2]
- Relative contraindications are increasingly being challenged due to surgeon expertise and patient demand. [3-5]
- This study investigates outcomes in patients with “relative” contraindications—obesity, left ventricular dysfunction, acute coronary syndrome (ACS), and previous cardiac surgeries.

Methodology

- Study Design: Retrospective analysis of 28 patients undergoing MICS with relative contraindications.
- Groups:
 - Obese patients (BMI >30)
 - LV dysfunction (LVEF <35%)
 - ACS with unstable hemodynamics
 - Redo surgeries (post-valvotomies/repairs)
- Surgical Techniques: Use of on-pump/off-pump strategies, longer instruments, vacuum-assisted drainage, core knotting for valves, and tailored cannulation.



Results

- Obese Patients (BMI > 30)
- 8 patients (BMI 32–40, mean 34.87)
 - 6 CABG + 2 valve replacements
 - Longer operative time, but successful outcomes
- LV Dysfunction (LVEF < 35%)
- 6 patients: 4 on-pump, 2 off-pump
 - 3 needed IABP
 - Low threshold for IABP insertion post grafting
- ACS Patients
- Used elective on-pump + beating heart technique
 - Mean grafts: 2.84 ± 0.72
 - IABP used in all for CPB weaning
 - Longer operative time mainly due to weaning & hemostasis
- Redo Surgeries
- 4 patients: past mitral interventions
 - 3 MVR, 1 MVR + tricuspid repair
 - Challenges: adhesions, exposure, cross-clamp difficulty, hypothermia.

Technical Notes

- Use of longer instruments, core knot technique
- Vacuum-assisted drainage
- IJV/SVC/IVC cannulation techniques
- Avoid head-low positions
- Smaller retractor blades to reduce aortic insufficiency

Outcomes

- Mean ventilation time: 6 ± 1.4 hrs
- Reduced re-intubation vs sternotomy
- Comparable bleeding, ICU stay, and IABP time

Conclusion

- MICS is feasible even in high-risk groups when performed with appropriate planning and expertise.
- Challenges are manageable with technique adaptation and intraoperative vigilance.

References:

- Santana O, Xydas S, Williams RF, Wittels SH, Yucel E, Mihos CG. Minimally invasive valve surgery in high-risk patients. J Thorac Dis. 2017 Jun;9(Suppl 7):S614–S623. doi: 10.21037/jtd.2017.03.83. PMID: 28740715; PMCID: PMC5505934.
- Fattouch K, Moscarelli M, Del Giglio M, Albertini A, Comoglio C, Coppola R, et al. Non-sutureless minimally invasive aortic valve replacement: mini-sternotomy versus mini-thoracotomy: a series of 1130 patients. Interact Cardiovasc Thorac Surg. 2016 Aug;23(2):253–8. doi: 10.1093/icvts/ivw104. PMID: 27160409.
- Ramlawi B, Bedeir K, Lamelas J. Aortic Valve Surgery: Minimally Invasive Options. Methodist Debakey Cardiovasc J. 2016 Jan–Mar;12(1):27–32. doi: 10.14797/mdcj-12-1-27. PMID: 27127559; PMCID: PMC4847964.
- Olds A, Saadat S, Azzolini A, Dombrovskiy V, Odroniec K, Lemaire A, et al. Improved operative and recovery times with mini-thoracotomy aortic valve replacement. J Cardiothorac Surg. 2019 May 9;14(1):91. doi: 10.1186/s13019-019-0912-0. PMID: 31072356; PMCID: PMC6509756.
- Sündermann SH, Czerny M, Falk V. Open vs. Minimally Invasive Mitral Valve Surgery: Surgical Technique, Indications and Results. Cardiovasc Eng Technol. 2015 Jun;6(2):160–6. doi: 10.1007/s13239-015-0210-5. PMID: 2657723

Acknowledgements

Add your information, graphs and images to this section.